Weekly Report – week of June 13, 2011
Fabrication and Assembly of ERL hardware
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Cryogenics: The welding of the last phase one cryogenic transfer line is in process. The piping to tie-in the helium gas storage tank is completed, the instrumentation line for pressure transmitter for this tank is underway. The termination of the temperature and controls wiring continues. Oil has been processed for filling in the Sullair compressor (main compressor for plant).

Controls: A test where Controls System software is run directly from the Libera Beam Position Module has successfully demonstrated our ability to use the existing software infrastructure in order to integrate this new type of instrumentation hardware. Work continued on testing the new peak RF power meter software interface and on improving data digitization for the upcoming 5-cell RF cavity cold test.

Instrumentation: The first article acceptance testing of the YAG/OTR high energy profile monitor is complete. Suggested minor modifications to the mechanics and illumination system have been tried and proven on our bench. Manufacture of the 4 remaining articles is being released to Radiabeam this week based on our conditional acceptance report. PMT based beam loss detector testing is being setup. Layout drawings of the existing instrumentation racks is underway. The order for the 5 Libera BPM electronics has been placed with I-Tech, expected delivery date is September 15th. Bench testing of the prototype Libera BPM electronics continues, a sample BPM pick-up is being configured for installation in the X-Y wire scanner fixture. Bench testing of the ICT electronics continues. Layout of the dump transport is underway with a focus on reusing one of the G5 low energy profile monitors, and the location of the DCCT. Controls & MPS interface definition effort continues.

Laser: Repaired laser cooling problem, and laser is operational again. Alignment adjustments were necessary due to large temperature swings the laser has undergone due to climate control problems. Laser locking stability is poor and shows pronounced alignment sensitivity; working on optimizing it in its current configuration and exploring alternative configurations that will make it less sensitive. Working with vacuum group on a window holder design in the transport line that will facilitate use of higher quality windows and simplify swapping of windows for different wavelengths. Climate control in Laser Room remains poor: one AC unit is working, which keeps the temperature within ~5 deg F of the target temperature. The second unit has a serious problem and is being addressed by HVAC.

FPC conditioning: The testing of the FPC's for the ERL has been stopped due to a water leak in the airside inner conductor. We had reached 114kw prior to noting a discrepancy in the reflective power measurements. A meeting was held with AES to discuss a replacement part and possible repair to the leaking part to allow

continued testing. We still need to understand the water flow rates for proper cooling at high power operations.

Photocathode: A bake of the Cesium (Cs) and Potassium (K) source arms were completed in preparation for making a multialkali photocathode. The Potassium (K) source arm was not able to reach the desired vacuum which prevented us from valveing it into the main chamber. The Potassium (K) source arm has been leak checked and is now being re-baked. A meeting was held to discuss adding additional pumping to the source arms. Also in the discussion was adding ion pumps to the arms while the sources are stored behind their respective isolation valves.

Gun Cryomodule: The gun and string assembly are further delayed for processing at J-Lab due to an issue with J-Lab re-qualifying their cleaning facility. The first part for the transport cart upgrade has been received from the fabrication shop.

PASS System: The installation and testing of the VTF PASS system is moving forward now the cable tray is reinstalled. The electrical power hooked-up has been scheduled .

Mezzanine: An RFQ to raise the mezzanine two feet is being prepared to accommodate the requirements for the processing of the 56MHz cavity in the clean room that is being proposed to reside underneath.

Large Grain Gun: The top plate has been shipped to the vendor for the necessary modifications. Large grain gun has been sent to Jefferson Laboratory for chemical processing after completion of final reference measurements made by Survey and Alignment group and preparation of necessary seals for processing.

5-cell cavity/cryomodule: The paperwork continues for the G-5 test safety review. The surveyors have started to verify locations of the faraday cups (beam dumps) for the G-5 test. An earlier date of June 27th and 28th has been set for the next 5 cell run to test the LLRF feedback loop.

ERL injection line: Vacuum envelope is in preparation to final review, correction magnets are under design.

ERL Extraction line: Magnets are being fabricated; beam dump pressure vessel code compliance under evaluation, vacuum/instrumentation layout needs to be reviewed and finalized.

ERL Tech Support Area: The EEBA area is on hold due to funding issues. Design drawings and cost estimates have been completed. Due to funding constraints for the construction of the enclosure and refurbishment of this area this work in now on hold.